Comm*Plete*™
COMMUNICATIONS SERVER

MR9600 Controller
User Guide

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Systems

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MR9600 Controller User Guide

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Revision	Date	Description
A	03/31/97	Manual released.
B	05/27/97	Added T1 and update commands.
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Federal Communications Commission Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Important Safety Instructions

Caution: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

The MR9600 Controller circuit board includes a battery that maintains the MR9600's setup information when it is turned off or disconnected from power. The battery can maintain the setup information for approximately 10 years with no external power, and longer when the MR9600 is turned on and operating normally. This battery is soldered onto the circuit board and cannot be replaced by the user.

If, for some reason, the MR9600's battery should fail, please contact Multi-Tech Technical Support at (800) 972-2439 for replacement instructions.

Table of Contents

1   Introduction

Introduction

This manual describes the field installation and configuration of a Multi-Tech MR9600 Controller (henceforth, MR9600) into a CommPlete Communications Server CC9600 chassis. This manual also contains a reference guide to the commands that are used to configure and control the MR9600.

Product Description

The MR9600 is the system controller module for the CommPlete Communications Server. It contains a built-in Web, FTP, and Telnet server, an embedded SNMP agent, and an Ethernet concentrator module. Its complete management capabilities allow the CommPlete Communications Server and its segments to be managed remotely across any TCP/IP network.

LED Indicators

The MR9600 front panel contains the following LED indicators.

- Card status LEDs 1–16

- Ethernet status LEDs 1–4

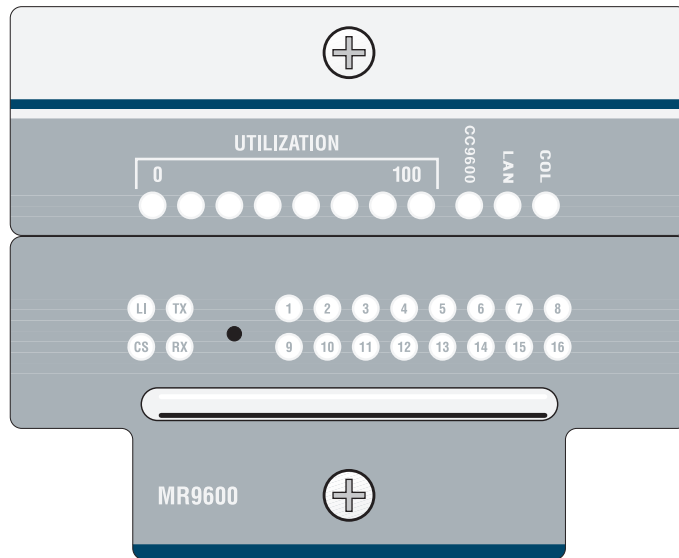- Ethernet concentrator LEDs

Figure 1. MR9600 Controller front panel.

Card Status LEDs

The lower part of the MR9600's front panel contains 16 two-color LED indicators, one for each card slot in the CC9600 chassis. The slots are numbered 1 through 16 from left to right. The LEDs indicate the state of

the device cards installed in the CC9600 chassis. When the MR9600 is turned on, the lights go through the following sequence before they act as status indicators for the device cards.

1. The LEDs on the right side turn red and then turn green when the right SIMM passes its memory test.

2. The LEDs on the left side turn red and then turn green when the left SIMM passes its memory test.

3. The LEDs stay green for about five seconds while the flash boot code waits for a handshake sequence on the diagnostic serial port.

4. If none is detected (this is normal unless the firmware is being updated through the diagnostic port) the main controller code starts running and the LEDs are turned off.

5. The LEDs are turned on and off, one at a time, red and green.

6. All LEDs turn green while the system starts up.

7. After the system has started, the LEDs reflect the status of the device cards. Each LED will be in one of the following states, depending on the device card.

LED Color	Device Card Status
Off	Card not installed.
Green	Card installed and all devices are communicating with the MR9600.
Red	Card installed and none of the devices are communicating with the MR9600.
Flashing Red/Green	Card installed and one or two devices are not communicating with the MR9600.

Ethernet Status LEDs

The lower part of the MR9600 front panel contains four indicators that show the status of the MR9600 Controller's Ethernet port.

LED Indicator		Color	Indication
LI	Link Integrity	Yellow	On during a good link
CS	Collision Sense	Red	On when there is a collision on the Ethernet port
TX	Transmit	Green	On during Ethernet transmit
RX	Receive	Green	On during Ethernet receive

Concentrator LEDs

The upper part of the MR9600 front panel contains 11 status indicators for the Ethernet concentrator.

LED Indicator	Indication
UTILIZATION	Percentage of bandwidth in use. Each LED that is on represents a 12.5% increment in use.
CC9600	On during a valid Ethernet link on the CC9600 port.
LAN	On during a valid Ethernet link on the LAN port.
COL	On when there is a packet collision on any of the concentrator's seven Ethernet ports.

Connectors

The MR9600 has three connectors that are accessible from the rear of the CC9600 chassis.
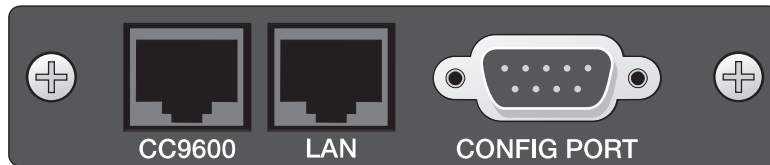
Figure 2. MR9600 connectors.

Connector	Type	Function
CC9600	RJ-45	Crossover 10Base-T network connector. The transmit and receive pairs of wires are swapped so the connector can be used with a straight-through cable to connect the CommPlete Communications Server to an external concentrator or to the LAN connector on another CommPlete Communications Server.
LAN	RJ-45	Straight-through 10Base-T network connector. Use with a straight-through cable to connect the CommPlete Communications Server to a network card in a server, to a network wall connector, or to the CC9600 connector on another CommPlete Communications Server.
CONFIG PORT	Male DB-9	RS-232C configuration port for MR9600 Controller.

Specifications

- Motorola MC68360 25 MHz microprocessor

- 8 MB of RAM for volatile storage

- 2 MB of flash memory: 1 MB for program space and 1 MB for nonvolatile file system space

- Two RJ-45 10Base-T connectors for connection to a TCP/IP Ethernet network

- One male DB-9 RS-232C diagnostic and configuration connector

- Sixteen two-color LEDs for quick view of device card status

- Four Ethernet status LEDs

- Eight Ethernet utilization LEDs

- Two Ethernet link indicator LEDs

- One Ethernet collision LED

- Recessed reset button

- Dimensions: $7.3 \times 8.9 \times 33.0$ cm (H $\times$ W $\times$ D)
                  $2.87 \times 3.5 \times 13$ inches (H $\times$ W $\times$ D)

- Weight: 0.45 kg (1.0 lb.)

- Operating temperature: 0°–40° C (32°–104° F)

- Operating humidity: 0–95%, non-condensing

- Power consumption: 4.5 A @ 5 V

- Fuse: 7 A on 5 V supply

- Limited Warranty: Two years

2 Installation

Introduction

This chapter describes how to install the MR9600 Controller into a CommPlete Communication Server CC9600 chassis. This equipment should only be installed by properly qualified service personnel.

The MR9600 Controller assembly consists of the MR9600 Controller card, an integrated Ethernet concentrator card, and a common front panel. Figure 3 shows the layout of the MR9600 card without the concentrator. The MR9600 assembly plugs into bus connectors on the inside of the CC9600 chassis. Three communications connectors on the concentrator module are accessible from the back of the CC9600 chassis: a DB-9 serial connector for MR9600 diagnostics and configuration, and two Ethernet 10Base-T connectors for network access.
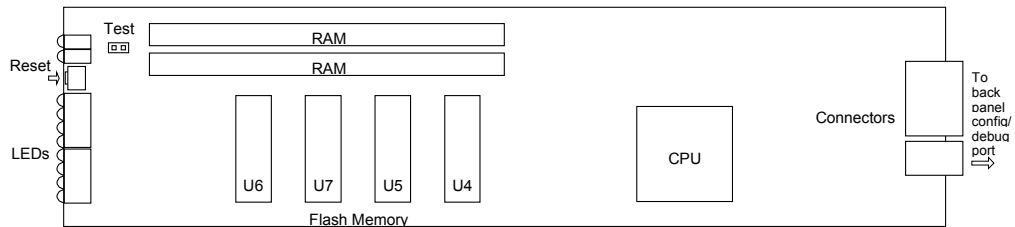
Figure 3. MR9600 Controller card. Ethernet concentrator module not shown.

Installation Procedure

1. Unpack the MR9600 assembly from its packaging, and save the packaging for possible future use. Perform a visual inspection of the MR9600. If you are concerned about the condition of the MR9600, call Technical Support for instructions.

2. Remove the blank controller panel or previous MR9600 controller from the CC9600 chassis. The MR9600 is hot-swappable.

3. Holding the MR9600 by its handle and the edges of the bottom panel, place the MR9600 into the open controller slot of the CC9600. Make sure the edges of the MR9600 card mate properly with the plastic guides in the CC9600.

4. Slide the MR9600 into the CC9600 chassis until you feel the MR9600's connectors fit into the bus connectors at the back of the CC9600.

5. Tighten the MR9600's retaining screws.

6. Turn on the PS9600 power supplies, if they are off.

7. Note the PS9600 LED indicators. If they are not lit, see Chapter 6. If they are lit, proceed with MultiCommManager operation (Refer to the MultiCommManager *User Guide*).

Note: A self-test runs each time the CommPlete Communications Server is turned on. Refer to the MultiCommManager User Guide for more details on the power-on self-test.

Ethernet Cabling

Two female Ethernet 10Base-T connectors are accessible from the back of the CC9600 chassis. Connect one of these connectors to the TCP/IP network that the supervisor console is attached to. The supervisor console is the PC that runs the MultiCommManager software or, optionally, a third-party SNMP manager.

Serial Cabling

Use the 9-pin RS-232 connector on the back of the CC9600 chassis for diagnostics and configuration.

3 Quick Start

MR9600 Quick Start

1. Turn off all power to the CommPlete chassis.

2. Using the provided 9-pin null modem cable (PN 45009600), connect a COM port on a PC to the Config Port connector on the back of the CommPlete chassis. Turn on the PC and run Multi-Tech MultiExpress, or any standard datacomm program, in direct connect mode. To communicate with the controller card, use the following settings: *115,200 bps, 8N1,* and *no flow control.*

3. Turn on the power supply or supplies for the CommPlete chassis. If the CommPlete Communications Server is already on, press the reset button on the MR9600 controller's front panel with the end of a paper clip. A message appears that says **Welcome to the CommPlete Communications Server (MR9600).**

4. At the **username** prompt, type **supervisor** and press ENTER.

5. At the **password** prompt, type **supervisor** and press ENTER. The following prompt appears: **[0] A:\ #.**

6. Type **se** (or **setenviron**) and press ENTER.

7. The following menu appears:

    ```
    MultiCommManager Environment Setup

       1. System Defaults Setup
       2. Device Specific Setup

    Enter Selection (<1>,2, q, -):
    ```

9. Type **1** to set up the system defaults. The settings you create in the **System Defaults Setup** menus become the default settings for any new device that is inserted into the CommPlete chassis. In data entry lines, current defaults are displayed in angle brackets. Press ENTER to accept a default and go on to the next option or menu.

10. In the **System Defaults Setup** menu, type **1** to set up network defaults. If required, type the IP addresses for the default gateway (the local router, if any), subnet mask, and DNS servers; otherwise leave them set at **0.0.0.0**.

11. In the **System Defaults Setup** menu, type **2** to set up RAS defaults. Be sure to choose the proper operating system for the RAS. If you are running RASExpress 5.0 or 5.1, be sure to choose option **1** (pre 5.2); if you are running RASExpress 5.2 or later, be sure to choose option **5**.

12. In the **System Defaults Setup** menu, type **3** to set up RAS security defaults. Here you can change the default administrator password. You will be prompted for primary and secondary server IP addresses. If you are using local security (RASExpress security, not RADIUS), leave these addresses set at the **0.0.0.0** default.

13. In the **System Defaults Setup** menu, type **4** to set up the T1 defaults to match your T1 line. Leave the transmit level set at -0.0 dB unless you have problems.

14. After completing the system defaults setup, select option **2** in the **MultiCommManager Environment Setup** menu to set up the individual devices in the CommPlete. The options that are most important to set now are the IP addresses for the controller and the IP addresses and operating system for each RAS. If these are not properly set, you will be unable to remotely configure the CommPlete.

15. After setting up the CommPlete's individual devices, save your changes and log out of the controller.

16. Telnet into the RASExpress server.

17. Select option 3, **Configuration of RASExpress**.

18. Select **Server Setup** and go to the **SNMP Agent** option.

19. Change **Attribute1 Name** to **public**.
    Change **Attribute2 Name** to **supervisor**.
    Change **Attribute2 Permission** to **readwrite**.

20. Press ESC a few times to log out of the RASExpress server.

21. Install the MultiCommManager software on your supervisor PC, which must have an Internet connection. Do not install it to a directory where MultiModemManager software is installed.

22. Open the MultiCommManager Explorer window and select **Physical View**.

23. Click **Add** to create in Explorer an IP site for the CommPlete controller and servers. Enter the IP address of the controller, a unique long name, and a unique three-letter short name. Click **OK**.

24. Double-click **Physical View**. You should see your site next to a green "IP." If the "IP" is gray, double-check your IP settings. Also, make sure the Read and Write Community settings match how they are set on the MR9600 controller.

25. Double-click the IP site you just created. You should see icons representing the modems at the site.

Installation is complete. If you need to change any settings, you can do so from MultiCommManager or by using Telnet.

Supervisor Console Quick Start

1. On the supervisor console, install the MultiCommManager software (see the MultiCommManager *User Guide* for more information).

2. Run the MultiCommManager software.

3. Select **Setup | SNMP | Mode | Supervisor**.

4. Click **Yes** when you are asked if you are sure.

5. In the physical view of the Explorer, click the world icon.

6. Click the **Add** button.

7. Type the IP address of the MR9600 (the same one you used in step 9 of the MR9600 Quick Start).

8. Click **OK**.

9. The IP will turn green, indicating that the supervisor console is able to communicate with the remote MR9600.

10. Configure the supervisor console as described in the next section.

4   Operation

Introduction

You can operate the MR9600 by using the front panel indicators for information (see Chapter 6). But if you install the optional MultiCommManager software, you can operate the MR9600 by running windows-based menu and command functions from a dedicated management console (refer to the MultiCommManager's *User Guide*).

Security

The MR9600 has a security system to prevent unauthorized system modification by Telnet, Web browser, or FTP users who access the system via the TCP/IP network or the diagnostic serial port on the back of the CC9600 chassis. SNMP and MultiCommManager software security is accomplished by selecting SNMP read and write community strings.

There are three levels of security: *guest*, *operator*, and *supervisor*. There are default user IDs and passwords for each level (see following table).

	Supervisor	Operator	Guest
Security Level	Can perform all management commands	Can perform non-destructive management commands	Can only view information
Default User ID	supervisor	operator	guest
Default Password	supervisor	operator	guest

Once you are logged in, you can change your user ID and password by using the commands **userid** to change your user ID, and **passwd** to change your password (see Chapter 5).

File System

The MR9600 stores configuration, security, and event information in files. There are two drives on the system: A and B. The A drive is used for nonvolatile information such as configuration and security database files, and is about 1 MB in size. The B drive is for volatile information such as event files, and is about 6.5 MB in size. Each drive has an MMM directory on it. A:\MMM stores all configuration information for the system. B:\MMM\MR.LOG contains all of the event files for the system. The file system can be accessed either through the command line interface or by using FTP.

Event Files

One event file is created for each hour in the format MMDDHHYY.HR, where MM is the month, DD is the day, HH is the hour, and YY is the last two digits of the year. When the drive fills up, the oldest .HR file is deleted. The number of events your MR9600 will hold depends on the number of calls you receive in a day. Event files can be FTPed from the MR9600 and analyzed using the Statistical Analyzer, which is part of the MultiCommManager software.

SNMP Interface

The MR9600 can be monitored and controlled by using SNMP through the MultiCommManager or a third party SNMP manager.

To receive traps from the MR9600, the SNMP manager should log in using the entry in the system table. In that entry, do a set of "login PUBLIC." When you are done monitoring the MR9600, do a set of the same variable with "logout." This will stop traps being sent to your station. MultiCommManager does this automatically.

Command Line Interface

The MR9600 provides a complete command line interface that enables you to do most of your management functions through either the MR9600's diagnostic serial connector or, more likely, by using Telnet. When first setting up your MR9600, you must use the MR9600 diagnostic serial connector to set up the system's TCP/IP information, such as its IP address, default gateway IP address, etc., as described in the MR9600 Quick Start in Chapter 3.

When you first connect with the MR9600, either in Telnet or by using the serial port, you will be prompted for a user ID and password. Enter the correct user ID and password for the desired security level (see "Security" on page 15). Once you are logged in, the screen should show the following information.

```
Welcome to MultiCommManager
version 2.53

Press any key to start system
manually...starting............done

Username: supervisor
Password *********

[0] A:\ #
```

The command line prompt is the current directory followed by a # character. You can switch between the MR9600's two drives, A and B, by using the **cd** command or by typing **A:** or **B:**. A standard set of DOS and UNIX file system commands are available, though in limited fashion (no wildcards are supported, etc.). See Chapter 5 for command functions and limitations.

Some commands allow you to monitor activity on the CommPlete's modems. The commands **getmodems**, **getcalls**, and **getfaults** allow you to see the current state of the modems, the connection history of the modems, and the history of faults on the modems, respectively.

Information that does not fit on the screen is displayed one page at a time by using a **--MORE--** prompt. When you see this prompt, you have the option of quitting the list by typing **Q** or continuing the list by typing anything else.

Some commands allow you to change the current state of the modems. With the commands **oosset, oosclear**, **reset**, and **config**, you can set modems in or out of service; reset them, or configure them, respectively.

Use the **logout** command when you are done using the command line interface, in order to leave the MR9600 in a secure state.

For a complete list of the MR9600's commands, see Chapter 5.

Telnet Interface

Telnet is a standard Internet protocol that allows a remote connection between two systems connected to a TCP/IP network such as the Internet. The MR9600 can be managed remotely by using Telnet. Telnet can give the user access to all management functions through the command line interface.

There is an inactivity timer associated with the Telnet session. If there is no activity for 10 minutes, then the Telnet session will close.

Web Browser Interface

The MR9600 can be monitored and controlled from a World Wide Web browser such as Netscape Navigator version 2.0 or later, or Microsoft Internet Explorer version 3.0 or later.

Two interfaces are available: an HTML framed interface (in which the browser screen is split into separate frames) and a non-framed interface. To use the framed interface, type the following URL in your browser's URL entry line and press ENTER:

http://111.222.333.444/mmm/main.html

For the non-framed interface, use the following URL:

http://111.222.333.444/mmm/standard.html

In both examples, 111.222.333.444 represents your card's IP address.

Logging In

Whenever you access the MR9600 for the first time during a browser session, you will be prompted for a user ID and password. You must log in as someone of security level operator or higher to get access to the Web interface.

Both the framed and the non-framed interfaces present logged-in users with a list of available views (Framed or Standard), a list of operations, and a list of information views. These are all available via hypertext links.

Getting Modem Information

In each interface the same information is available in table format. There are tables of information about modems, calls on modems, modem and system faults, and system version. In the framed version these tables appear in frames on a single HTML page; in the non-framed version each table appears on a separate HTML page.

Controlling Modems

In either interface, the user can reset modems, set modems in or out of service, and configure modems. When the user selects the hot link for an operation, a form appears in which the user can enter in list format (e.g., 1A:3C,15B) the modems that are to have the desired operation performed on them. The operation is performed when the user selects the action button (e.g., **Config** if the user is configuring modems).

Web Interface Limitations

The Web interface does not provide a full management interface. Full management is provided by our MultiCommManager software, or through the use of a third party SNMP manager. However, once the system is set up, most management can be done using the Web browser interface.

FTP Interface

FTP (File Transfer Protocol) is a standard Internet protocol that allows the transfer of files between two systems connected to a TCP/IP network, such as the Internet. The MR9600 acts as an FTP server so that FTP clients can send and receive files to and from it.

You need FTP to transfer configuration files (*.cfg) to and from your system. If you plan to use MultiCommManager security, you need FTP to transfer security files (*.db) to and from your system. If you wish to analyze event information, you also need FTP to transfer event files (*.hr) from the MR9600 to a management computer where you can run the Statistical Analyzer on them.

Note: When logging in, you must use the Supervisor user name and password.

5   Commands

Parameter Types

Many MR9600 commands require a parameter to complete the command. Most of the required parameters fall into one of the four following types.

Pathname

Description: A DOS-style path and/or file name. A partial path assumes the current directory.

Full *pathname* **example: a:\mmm\mr9600.ini**

Partial *pathname* **example: mr9600.ini**

The preceding partial pathname gives the same result as **a:\mmm\mr9600.ini** if the current working directory is **a:\mmm**.

Device

Description: A list of modems or T1 devices separated by commas. No spaces are allowed. A colon selects a range of devices from the device preceding the colon through the device following the colon.

The device identifier includes the device's slot number and device letter. A CommPlete Communications Server has 16 slots, numbered from left to right, with the RASCards occupying slots 1, 5, 9, and 13. Each modem card contains 8 modems, represented by the *letters A, B, C, D, E, F, G,* and *H*. Thus, 7D is the fourth modem in slot 7.

Examples:

The following two strings each select modems 1A, 2A, 2B, 2C, 2D, 2E, 2F, 2G, 2H, 3A, 3B, and 4C:

1A,2A:3B,4C
1A,2A,2B,2C,2D,2E,2F,2G,2H,3A,3B,4C.

Note: T1 devices can exist only at 1b, 1c, 5b, 5c, 9b, 9c, 13b, and 13c.

IP Address

Description: An IP address string consisting of four decimal numbers separated by periods. Each number may have up to three digits.

Example: 192.168.4.25

IP Address Mask

Description: An IP address string consisting of four decimal numbers separated by periods, in which only the decimal numbers 255 and 0 are permitted. It is used to select a set or range of IP addresses. The standard Class A mask is 255.0.0.0, the standard Class B mask is 255.255.0.0, and the standard Class C mask is 255.255.255.0.

Example: 255.255.255.0

Commands Listed by Function

This section lists the MR9600's commands alphabetically by the following functions: Display, Environment, File, Modem Control, and Security.

For an expanded description of each command, see "Command Reference" on page 30.

Display

Command Name	Parameter	Description
getcalls	Device	Displays call traffic for the device
getfaults	Device	Displays faults for the device
getmodems	Device	Displays the current status for the device
getpowerstatus, getps	None	Displays the main power supply/supplies status and which segments are powered up
getrack	Device	Displays the chassis type
getslots	None	Displays hardware type and location in rack
gettemp	None	Displays the internal ambient temperature of the rack in degrees Fahrenheit and Celsius.

Environment

Command Name	Parameters	Description
bpstatus	None	Displays the rack's back plane polling activity between the controller and each powered device
cl, clock	None	Displays current date and time
date	None	Prompts you for current date
getgateway	None	Display the configured gateway address
getip	None	Display the configured IP address
Getprichannels	Device	Retrieve the current status of each B-channel and modem channel under the control of the PRI card.
getreadcommunity	None	Displays the Read community settings
getsendtrap	None	Displays whether traps are being sent or not.
getsubnet	None	Display the configured subnet mask
gettrap	None	Display the configured trap address
getwritecommunity	None	Displays the Write community settings
more	Pathname	Displays the contents of a file, one page at a time
priocbchannel	Device	Set the specified channel in service
priosbchannel	Device	Set the specified channel out of service
pristatus	Specifier	Retrieve the current status of the specified PRI card
prisetup	Specifier	Set configuration parameters for a PRI card.

se, setenviron	None	Controller configuration utility (a menu driven system used to set global defaults and configure system devices)
setgateway	IP Address	Configure the gateway address
setip	IP Address	Configure the IP address
setpollingoff	Device	Disables the controller generated polling to specified device
setpollingon	Device	Re-enables polling between controller and specified device
setrasostype	Device	Lets the controller know what operating system is loaded on each segment
setreadcommunity	None	Change the Read community settings
setsendtrap	On/Off	Changes the status of sending traps.
setsubnet	IP Address Mask	Configure the subnet mask
settrap	IP Address	Configured the trap address
setwritecommunity	None	Change the Write community settings
t1cfg	Device	Sends stored configuration data to a T1 device
t1debug	Device	Displays status of AB Signaling bits for both the transmit and receive directions of each DSO channel for the specified T1 device within the CommPlete
t1setup	Device	Configures a T1 device
t1status	Device	Displays the status of a T1 device
time	None	Prompts you for current time
update	Pathname Device	Updates firmware of the controller, T1 cards, or modems.
uptime	None	Displays date and time since the last boot
version, ver	None	Displays the version number and release date of the CC9600 Controller's Operating System

File

Command Name	Parameters	Description
cat	Pathname	Display the contents of an ASCII text file
cd, chdir	Pathname	Change to the specified directory
copy, cp	Pathname1 Pathname2	Copy a file from Pathname1 to Pathname2
del, delete	Pathname	Delete a file
dir	Pathname	Display the contents of a directory
download	Pathname	Download a file from the MR9600 controller
ls	Pathname	Display the contents of a directory
md, mkdir	Pathname	Make directory

online	Device	Allows the user to perform AT commands with the selected device
rd, remdir	Pathname	Remove directory
ren, rename	Pathname	Rename a file
rendir	Pathname	Rename a directory
rm	Pathname	Delete a file
sync	None	Writes outstanding events to the Log directory
type	Pathname	Display the contents of an ASCII text file
upload	Pathname	Upload a file to the MR9600.

Modem Control

Command Name	Parameters	Description
cfg, configure	Device	Configure the specified device with the configuration file associated (via SNMP) with that device
getfkey1–getfkey4	None	Displays the current value for the function keys used when online with a device
oc, oosclear	Device	Set the device at specified device In Service
online	Device	Go online with a device to check or set configuration information
oosset, os	Device	Set the specified device Out Of Service
reset, rs	Device	Reset the specified device
setconfig	Pathname Device	Associates a configuration file with a device
setfkey1–setfkey4	Command String	Configures the current function key values for use when online with a device
test	Device	Performs a specific diagnostic test to an individual or range of modems
usage	Specifier	Displays how many modems: received or made calls, were OOS, were not responding, or were free

Security

Command Name	Parameters	Description
lo, logout	None	Logs you off of the system so next user has to login to get access
passwd, password	None	Will prompt you for old, new, and new password
security	None	Allows the modification of a subordinate security levels user name and password
userid	None	Will prompt you for old, new, and new user ID
whoami	None	Tells you what user is currently logged in

System

Command Name	Parameters	Description
A:	None	Changes the drive the user is to work with
B:	None	Changes the drive the user is to work with
abort	None	Cancels update procedure of modem and T1 cards
boot	None	Reboot MR9600
bye	None	Logs the user off the system
exit	None	Logs the user off the system
format	Specifier	Initialize the specified drive to empty
history	None	Display command history buffer
quit	None	Logs the user off the system
mount	Specifier	Make the specified drive available to the operating system
readme	None	Display information about most recent changes to firmware
unmount	Specifier	Remove the drive from the operating system

Commands Listed by Security Level

This section lists the MR9600's commands by security level. The security levels are Guest, Operator, and Supervisor.

For an expanded description of each command, see "Command Reference" on page 30.

Guest

Command Name	Parameters	Description
A:	None	Changes the drive the user is to work with
B:	None	Changes the drive the user is to work with
bye	None	Logs the user off the system
cat	Pathname	Display the contents of an ASCII text file
cd, chdir	Pathname	Change to the specified directory
cl, clock	None	Displays current date and time
dir	Pathname	Display the contents of a directory
exit	None	Logs the user off the system
getgateway	None	Display the configured gateway address
getip	None	Display the configured IP address
getpowerstatus, getps	None	Displays the main power supply/supplies status and which segments are powered up
getsendtrap	None	Displays whether traps are being sent or not.
getsubnet	None	Display the configured subnet mask
gettemp	None	Displays the internal ambient temperature of the rack in degrees Fahrenheit and Celsius.
gettrap	None	Display the configured trap address
history	None	Display command history buffer
logout, lo	None	Logs you off of the system so next user has to login to get access.
ls	Pathname	Display the contents of a directory
more	Pathname	Displays the contents of a file, one page at a time
passwd, password	None	Will prompt you for old, new, and new password
quit	None	Logs the user off the system
security	None	Allows the modification of a subordinate security levels username and password
t1status	Device	Displays the status of a T1 device
type	Pathname	Displays the contents of an ASCII text file
userid	None	Prompts you for old, and new user id
version, ver	None	Displays the version number and release date of the CC9600 Controller's Operating System
whoami	None	Tells you what user is currently logged in

Operator

Command Name	Parameters	Description
abort	None	Cancels update procedure of modem and T1 cards
cfg, configure	Device	Configures the specified device with the configuration file associated (via SNMP) with that device
copy, cp	Pathname1 Pathname2	Copies a file from Pathname1 to Pathname2
date, d	None	Prompts you for current date
getcalls	Device	Displays call traffic for the device
getfaults	Device	Displays faults for the device
getfkey1–getfkey4	None	Displays the current value for the function keys used when online with a device
getmodems	Device	Displays the current status for the device
getrack	None	Displays the model number and description of the chassis
getslots	None	Displays hardware type and location in rack
oc, oosclear	Device	Sets the device at specified device In Service
online	Device	Allows the user to perform AT commands with the selected device
oosset, os	Device	Sets the specified device Out Of Service
pristatus	Specifier	Retrieve the current status of the specified PRI card
prisetup	Specifier	Set configuration parameters for a PRI card.
readme	None	Displays information about recent changes to firmware
reset, rs	Device	Resets the specified device
se, setenviron	None	Controller configuration utility (a menu driven system used to set global defaults and configure system devices)
setconfig	Pathname Device	Associates a configuration file with a device
setfkey1–setfkey4	Command String	Configures the current function key values for use when online with a device
setrasostype	Device	Lets the controller know what operating system is loaded on each segment
sync	None	Writes outstanding events to the Log directory
t1cfg	Device	Sends stored configuration data to T1 device
test	Device	Performs a specific diagnostic test to an individual or range of modems
time	None	Prompts you for current time
update	Pathname Device	Updates the firmware of the controller, a T1 device, or a modem
uptime	None	Displays date and time since the last boot
usage	Specifier	Displays how many modems: received or made calls, were OOS, were not responding, or were free

Supervisor

Command Name	Parameters	Description
boot	None	Reboots MR9600
bpstatus	None	Displays the rack's back plane polling activity between the controller and each powered device
del, delete	Pathname	Deletes a file
download	Pathname	Downloads a file from the MR9600 controller
format	Specifier	Initialize the specified drive to empty
getreadcommunity	None	Displays the Read community settings
getwritecommunity	None	Displays the Write community settings
md, mkdir	Pathname	Makes a directory
mount	Specifier	Make the specified drive available to the operating system
rd, remdir	Pathname	Removes directory
ren, rename	Pathname	Renames a file
rendir	Pathname	Renames a directory
rm	Pathname	Deletes a file
setgateway	IP Address	Configures the gateway address
setip	IP Address	Configures the IP address
setpollingoff	Device	Disables the controller generated polling to specified device
setpollingon	Device	Re-enables polling between controller and specified device
setreadcommunity	None	Changes the Read community settings
setsendtrap	On/Off	Changes the status of sending traps
setsubnet	IP Address Mask	Configures the subnet mask
settrap	IP Address	Configures the trap address
setwritecommunity	None	Changes the Write community settings
t1debug	Device	Displays status of AB Signaling bits for both the transmit and receive directions of each DSO channel for the specified T1 device within the CommPlete
t1setup	Device	Configures a T1 device
unmount	Specifier	Remove the drive from the operating system
upload	Pathname	Uploads a file to the MR9600.
userid	None	Changes the login username of the Supervisor

Modules

Modules are dynamically loaded features that can be loaded when the controller is running without having to re-start the system. In the following Command Reference section there are three commands used to manipulate modules. They are **loadmod**, **unloadmod**, and **listmod**.

As of right now the only type of module that can be loaded is called an IP Query module. IP Query modules query the system for some information and allow it to be displayed over the SNMP interface. The general way to do this is by using the IP Query feature in the MultiCommManager (see the MultiCommManager manual for details on this feature), although it can also be accessed by a 3rd party SNMP manager as well.

At this time Multi-Tech Systems can build modules for use only in the MR9600 controller.

Command Reference

This section describes the MR9600's commands in alphabetic order. For a description of the parameters, see "Parameter Types" on page 22.

!!

Parameter: *None*

Description: Repeats the last command that has been saved in the history buffer. The command that is executed is then placed into the history buffer at the current command index. Use the history command to print a list of previously executed commands. See *history*.

Security: Guest

Example:
```
[0] A:\ # clock
10/29/1996 1:20pm
[1] A:\ # !!
10/29/1996 1:20pm
```

!a

Parameter: The initial characters of the command to search for

Description: Repeats the command whose initial characters are indicated by the parameter. The command that is executed is then placed into the history at the current command index. A list of previously executed commands can be printed by using the **history** command. See *history*.

Security: Guest

Example:
```
[0] A:\ # clock
10/29/1996 1:20pm
[1] A:\ # ver
Version E-1.02 (Oct 24 1996 18:06:37)
[2] A:\ # !cl
10/29/1996 1:20pm
```

!n

Parameter: *Command history index.*

Description: Repeats the command whose index is indicated by the parameter. The command index is the number shown in the prompt when the command is executed. The command that is executed is then placed into the history buffer at the current command index. A list of previously executed commands can be printed by using the **history** command. See *history*.

Security: Guest

Example:
```
[0] A:\ # clock
10/29/1996 1:20pm
[1] A:\ # ver
Version E-1.02 (Oct 24 1996 18:06:37)
[2] A:\ # !0
10/29/1996 1:20pm
```

?

Parameter: *None*

Description: Displays an alphabetic list of the available commands.

Security: Guest

A:

Parameter: *None*

Description: Changes the drive the user is to work with.

Security: Guest

Example:
```
[01] B:\# A:
[02] A:\#
```

abort

Parameter: *None*

Description: Cancels update procedure of modem and T1 cards

Security: Operator

Example:
```
[03] B:\MMM # Update hd8-100d.hex 3a
Update started
[04] B:\MMM # Abort
Are you sure you wish to abort the update? (y/n) y
Aborting ...
[05]B:\MMM #
```

B:

Parameter: *none*

Description: Changes the drive that the user is to work with

Security: Guest

Example:

```
[01] A:\# B:
[02] B:\#
```

boot

Parameter: *None*

Description: Reboots the system by performing a reset of the MR9600 controller card. A prompt asks you to confirm your choice. If you wish to reboot the system, enter **y**. Any other key will halt the reboot operation.

Security: Supervisor

Example:

```
[0] A:\ # boot
Are you sure you wish to reboot the controller card?
(y/n)
```

bpstatus

Parameter: *None*

Description: Displays the rack's back plane polling activity between the controller and each powered device. Each correctly operating device responds to three specific polls; "Busy", "No Response", and "No Acknowledgement". If the device does not respond the counter/s will increment. The example below shows all devices in a fully loaded CC9600 are responding correctly.

Security: Supervisor

Example:

```
[1] A:\# bpstatus
Backplane Status:            Busy:NoResp:NoAck
-:no polling  0:count of 0    1-9: tens digit plus 1     *:>=ninety
Slot A    B    C   D    E    F    G   H    I  J  K  L  M  N  O  P
1:  000 000
2:  000 000 000 000 000 000 000 000
3:  000 000 000 000 000 000 000 000
4:  000 000 000 000 000 000 000 000
5:  000 000
6:  000 000 000 000 000 000 000 000
7:  000 000 000 000 000 000 000 000
8:  000 000 000 000 000 000 000 000
9:  000 000
10: 000 000 000 000 000 000 000 000
11: 000 000 000 000 000 000 000 000
12: 000 000 000 000 000 000 000 000
13: 000 000
14: 000 000 000 000 000 000 000 000
15: 000 000 000 000 000 000 000 000
16: 000 000 000 000 000 000 000 000
[2] A:\ #
```

bye

Parameter: *None*

Description: Logs the User off of the system

Security: Guest

Example:
```
[03] B:\# Bye
Bye
Username:
```

cat, type

Parameter: *Pathname*

Description: Displays the contents of the ASCII text file referred to by *Pathname*.

Security: Guest

Limitations: The **cat** command is more similar to the DOS **type** command than it is to the UNIX **cat** command.

Example:
```
[0] A:\MMM # cat mr9600.ini
[SecurityFile]
NumberOfFile = 1
1 = mr9600.db
[SecurityConfig]
UseridPrompt = ^m^jUserid:
PasswordPrompt = ^m^jPassword:
WelcomeMsg = ^m^jConnected to MultiCommManager System:^m^j
...
```

cd, chdir

Parameter: *Pathname*

Description: Change directory. The **cd** command sets the current working directory to *Pathname*.

Security: Guest

Example:
```
[0] A:\ # cd mmm
[1] A:\MMM #
```

cfg, configure

Parameter: *Device*

Description: Configure the specified device with the configuration file associated via SNMP with that device. The **cfg** command causes the configuration file associated with the modems specified by *Device* to be sent to them. If the modem is connected, the **cfg** commands will be ignored.

Security: Guest

Example:
```
[0] A:\MMM # cfg 1a,2a:2c
[1] A:\MMM #
```

chdir

See *cd.*

cl, clock

Parameter: *None*

Description: Displays current date and time (24 hour clock).

Security: Guest

Limitations: The time does not change automatically with daylight savings time.

Example:

```
[0] A:\MMM # cl
11/14/00 1:20pm
[1] A:\MMM #
```

configure

See *cfg*.

copy, cp

Parameter: *Pathname1 Pathname2*

Description: Copy the file *Pathname1* to *Pathname2*. If *Pathname2* exists, it is destroyed.

Security: Operator

Example:

```
[0] A:\MMM # copy mr9600.ini mr9600.old
[1] A:\MMM #
```

d, date

Parameter: *None*

Description: Displays the MR9600's current date and prompts you for a new date.

Security: Operator

Example:

```
[0] A:\MMM # d
The current date is: 11/14/2000
Enter the new date: mm/dd/yyyy 11/15/2000
[1] A:\MMM # cl
11/15/00 1:37pm
```

del, delete, rm

Parameter: *Pathname*

Description: Deletes the file specified by *Pathname*. The file is permanently destroyed, and cannot be recovered.

Security: Supervisor

Example:

```
[0] A:\MMM # del mr9600.old
[1] A:\MMM #
```

dir, ls

Parameter: *Pathname* or *none*

Description: The **dir** and **ls** commands display the contents of the current directory by file name, file size, and date; they also show the available space on the drive. If no parameter is used, the **dir** and **ls** commands list only the files of the current directory.

Security: Guest

Limitations: The output of the **ls** command is more similar to that of the DOS **dir** command than it is to that of the UNIX **ls** command.

Example:

```
[0] A:\MMM # dir
The current directory is 'A:\MMM'

  ..    <DIR>
  ...   <DIR>
MR9600.INI      965    12/19/1996  2:53pm
MR9600.GP       4155   12/18/1996  4:54pm
MR9600.CNF      12221  12/19/1996 11:22am
MR9600.INV      3812   12/19/1996  2:54pm
MR9600.DB       792    12/19/1996  2:56pm
DEFAULT.CFG     0      12/18/1996  1:56pm
MR9600.SAV      192    12/18/1996 11:56am
MR.LOG <DIR>           11/25/1996  3:50pm

  7 file(s) 22137 bytes
  3 dirs(s) 1015296 bytes free

[1] A:\MMM #
```

download

Parameter: *Pathname*

Description: Downloads the file specified by *pathname* from the MR9600 to a computer connected to the MR9600 controller's serial port connector on the back of the CC9600 chassis. The files are downloaded as hexadecimal values in ASCII text format.

Note: For debugging use only under the direction of technical support personnel. Files will normally be transferred using FTP.

Security: Supervisor

Limitations: The file transfer does not respond to flow control.

Example:

```
[0] A:\MMM # download mr9600.old
[5b][46][61][75][6c][74][41][6c][61][72][6d][73][5d][0d][0a][43]
[61][72][64][20][49][6e][73][74][61][6c][6c][65][64][20][3d][20]
[4f][4e][2c][30][2c][4e][4f][4e][45][0d][0a][43][61][72][64][20]
[52][65][6d][6f][76][65][64][20][3d][20][4f][4e][2c][30][2c][4e]
[4f][4e][45][0d][0a][50][6f][77][65][72][20][53][75][70][70][6c]
[79][20][46][61][69][6c][75][72][65][20][3d][20][4f][4e][2c][30]
[2c][4e][4f][4e][45][0d][0a][44][69][73][63][6f][6e][6e][65][63]
[74][3a][20][50][6f][77][65][72][4f][6e][20][6f][72][20][57][61]
[74][63][68][44][6f][67][20][3d][20][4f][4e][2c][30][2c][4f][4f]
...
[1] A:\MMM #
```

e1cfg

Parameter: *Device*

Description: Sends E1 configuration information stored in nonvolatile memory to the specified device. The specified device must be an E1 device. E1 devices can exist only at 1b, 1c, 5b, 5c, 9b, 9c, 13b, and 13c.

Security: Operator

Example:

```
[0] A:\MMM # e1cfg 13b
```

e1channelstatus, e1chstatus

Parameter: *Device*

Description: Displays the status of all the channels for the given E1 device.

Security: Guest

Example:

```
[0] A:\MMM # e1chstatus 13b
Channel   CO        Modem    OOS   Channel    CO        Modem     OOS
  1      On Hook   On Hook            2      On Hook   On Hook
  3      On Hook   On Hook            4      On Hook   On Hook
  5      On Hook   On Hook            6      On Hook   On Hook
  7      On Hook   On Hook            8      On Hook   Timeout
  9      On Hook   On Hook           10      On Hook   On Hook
 11      On Hook   On Hook           12      On Hook   On Hook
 13      On Hook   On Hook           14      On Hook   On Hook
 15      On Hook   On Hook           16      On Hook   On Hook
 17      On Hook   On Hook           18      On Hook   On Hook
 19      On Hook   On Hook           20      On Hook   On Hook
 21      On Hook   On Hook           22      On Hook   On Hook
 23      On Hook   On Hook           24      On Hook   On Hook
 25      On Hook   On Hook           26      On Hook   On Hook
 27      On Hook   On Hook           28      On Hook   On Hook
 29      On Hook   On Hook           30      On Hook   On Hook
CO - Central Office, * - Inconsistent State
```

e1setup

Parameter: *Device*

Description: Sets the E1 configuration information associated with an E1 device. This information is stored in a nonvolatile area of memory so that the device can be properly reconfigured on power-up or reset. The specified device must be an E1 device. E1 devices can exist only at 1b, 1c, 5b, 5c, 9b, 9c, 13b, and 13c.

Security: Supervisor

Example:

```
[0] A:\MMM # e1setup 13b
Use settings from:
   1. Use Active Settings (pre-configured card)
   2. Use System Defaults (new card)
   3. Use Stored Settings (swapping cards)
Enter Selection  (q(uit), <1>):  1
Getting E1 Card Info ...
   1. Channel Polling Interval (Sec):20
   2. Error Threshold          :10
   3. Disconnect Timeout (sec) :11
```

```
    4.  Framing Format           :CRC4
    5.  Line Coding              :Alternate Mark Inversion (AMI)
    6.  Signal Options           :R2 MF
    7.  DNIS-digits(1-64 or 0 for auto):0
    8.  Country Selection        :ITU
    9.  Line Buildout            :120 Ohm
Enter Selection  (-(previous), q(uit), d(one), <1>):
```

e1status

Parameter: *Device*

Description: Interrogates the status of the specified E1 device. The specified device must an E1 device. E1 devices can exist only at 1b, 1c, 5b, 5c, 9b, 9c, 13b, and 13c.

Security: Guest

Example:

```
[7] A:\MMM # e1status 13b
Getting E1 Card Info ...
E1 Card Status:
Channel Polling Interval (Sec):20
         Error Threshold:10
 Disconnect Timeout (sec):11
           Framing Format:CRC4
              Line Coding:Alternate Mark Inversion (AMI)
           Signal Options:R2 MF
DNIS-digits(1-64 or 0 for auto):0
        Country Selection:ITU
            Line Buildout:120 Ohm
          LED Information:Red Alarm, Sync Loss

                    Model:RAS9600-E1
                  Version:2.01/1.06
```

exit

Parameter: *None*

Description: Logs the User off of the system.

Security: Guest

Example:

```
[01] A:\# exit
Bye.
Username:
```

format

Parameter: *Drive Specifier*

Description: Initialize the specified drive to empty. All data is erased.

Security: Supervisor

Example:

```
[01] A:\# format b:
[02] B:\#
```

getcalls

Parameter: *Device* or *None*

Description: Displays call traffic for the modems listed in *device*. If there is no parameter, call traffic is listed for every installed modem.

Security: Supervisor

Example:

```
[0] A:\ #
[1] A:\ # getcalls

1A  No Calls
1B  No Calls
1C  05-21 08:15:02    A-33600-V.42bis    000-00:00:08
1C  05-21 08:15:41    A-33600-V.42bis    000-00:00:08
1C  05-21 08:32:58    A-33600-V.42bis    000-00:00:09
2A  05-21 08:13:48    O-33600-V.42bis    000-00:00:08         DT13
2A  05-21 08:14:26    O-33600-V.42bis    000-00:00:09         DT13
2A  05-21 08:15:02    O-33600-V.42bis    000-00:00:08         DT13
2A  05-21 08:16:20    O-33600-V.42bis    000-00:00:08         DT13
2A  05-21 08:33:02    Originate    Open Call                  DT13
2B  05-21 08:13:47    O-33600-V.42bis    000-00:00:08         DT16

...

[2] A:\ #
```

getdevices

Parameter: *Device*

Description: Displays the current status of each device in the system

Security: Operator

Example:

```
[0] A:\MMM # getdevices

1A    RAS    Up
5A    RAS    Up
5B    T1     Online
6A    Modem Connected    11-06 16:22:16 A-21/24:V34:42b USER1
6B    Modem Connected    11-06 16:26:52 A-19/26:V34:42b USER2
6C    Modem Connected    11-06 15:48:18 A-19/28:V34:42b USER3
6D    Modem Connected    11-06 15:52:53 A-28/52:V90:42b USER4
6E    Modem Connected    11-06 16:01:31 A-21/40:V90:42b USER5
6F    Modem Connected    11-06 16:04:28 A-28/28:V34:42b USER6
6G    Modem Connected    11-06 16:10:24 A-24/28:V34:42b USER7
6H    Modem Connected    11-06 16:25:56 A-28/24:V34:42b USER8
9A    RAS    Up
10A   PRI    Up           Layer 1 Status: Up, Layer 2 Status: Multi-
Frame Estab
li
```

gete1

Parameter: *Device*

Description: Displays the current status of each e1 device. **Security:** Operator

Example:

```
[0] A:\MMM # gett1
 5B    T1     Online
13B    T1     Online
```

getfaults

Parameter: *Device* or *None*

Description: Displays faults for the modems listed in *device*. If there is no parameter, faults are listed for every installed modem.

Security: Operator

Example:

```
[5] A:\MMM # getfaults
----------------------- System Faults -------------------------------
  11-15 16:20:05 Remote management session terminated 204.26.122.18
  11-15 16:33:35 Remote management session initiated 204.26.122.18
------------------------- Device Faults -----------------------------
6A 11-15 19:56:48 Disconnect - Retrain Failure
6A 11-15 20:19:49 No Connect - No Carrier/Unable to train
6A 11-16 08:02:58 Disconnect - Retrain Failure
6C 11-15 17:55:57 Disconnect - Retrain Failure
[5] A:\MMM # getfaults 6a
6A 11-15 19:56:48 Disconnect - Retrain Failure
6A 11-15 20:19:49 No Connect - No Carrier/Unable to train
6A 11-16 08:02:58 Disconnect - Retrain Failure
```

getfkey1, getfkey2, getfkey3, getfkey4

Parameter: *None*

Description: Displays the current configuration for the specified online function key. These function keys can be used when one is online with a modem. *See* **online**.

Security: Operator

Example:

```
[0] A:\ # getfkey1
Function Key 1: 'ATL5'
[1] A:\ # getfkey2
Function Key 2: 'ATL6'
[2] A:\ # getfkey3
Function Key 3: 'ATL5L6L7'
[3] A:\ # getfkey4
Function Key 4: 'ATI1I2I3I4'
```

getgateway

Parameter: *None*

Description: Displays the default gateway IP address for the MR9600, if one is set.

Security: Guest

Example:

```
[0] A:\MMM # getgateway
Gateway IP Address = 199.199.99.1
[1] A:\MMM #
```

getip

Parameter: *None*

Description: Displays the MR9600's IP address.

Security: Guest

Example:
```
[0] A:\MMM # getip
IP Address = 199.199.99.9
[1] A:\MMM #
```

getmodems

Parameter: *Device* or *none*

Description: Displays the current status for the modems specified by *device*. If there is no parameter, current status is displayed for every installed modem.

Security: Operator

Example:
```
[0] A:\ # getmodems

1A    Idle          default.cfg    Group1      Dial Up  No Security
1B    Idle          default.cfg    Group1      Dial Up  No Security
1C    Idle          default.cfg    Group1      Dial Up  No Security
2A    Idle          default.cfg    Group1      Dial Up  Call In Security
2B    Dial          default.cfg    Group1      Dial Up  Call In Security
2C    Ring          default.cfg    Group1      Dial Up  Call In Security
3A    Dial          default.cfg    Group1      Dial Up  Callback Security
3B    Ring          default.cfg    Group1      Dial Up  Callback Security
3C    Idle          default.cfg    Unassigned  Dial Up  Callback Security
4A    Idle          default.cfg    Group1      Dial Up  No Security
4B    Idle          default.cfg    Unassigned  Dial Up  No Security
4C    Idle          default.cfg    Group1      Dial Up  No Security

[1] A:\ #
[2] A:\ # getmodems 4a:5c

4A    Idle          default.cfg    Group1      Dial Up  No Security
4B    Idle          default.cfg    Unassigned  Dial Up  No Security
4C    Idle          default.cfg    Group1      Dial Up  No Security
5A    Not Present   default.cfg    Unassigned  Dial Up  No Security
5B    Not Present   default.cfg    Unassigned  Dial Up  No Security
5C    Not Present   default.cfg    Unassigned  Dial Up  No Security

[3] A:\ #
```

getpowerstatus, getps

Parameter: *None*

Description: Displays the main power supply (or supplies) status and which segments are powered up.

Security: Guest

Example:
```
[02] A:\ # getpowerstatus

Left Power Supply:     Installed, All outputs good
Right Power Supply:    Installed, All outputs good

First Segment:   Powered
Second Segment:  Not Powered
Third Segment:   Not Powered
Fourth Segment:  Not Powered

[03] A:\ #
```

getpri

Parameter: *Device*

Description: Displays the current status of each PRI device

Security: Operator

Example:
```
[0] A:\MMM # getpri
10A   PRI   Up              Layer 1 Status: Up, Layer 2 Status: Multi-
Frame Estab
```

getprichannels

Parameter: *Device*

Description: Displays the current status of each of the B-channels and modem channels under the control of the PRI card.

Security: Supervisor

Example:
```
getprichannels 2a
getting PRI Info
Bchannels
Chan 01: Ready   Chan 02: Ready
Chan 03: Ready   Chan 04: Ready
Chan 05: Ready   Chan 06: Ready
Chan 07: Ready   Chan 08: Ready
Chan 09: Ready   Chan 10: Ready
Chan 11: Ready   Chan 12: Ready
Chan 13: Ready   Chan 14: Ready
Chan 15: Ready   Chan 16: Ready
Chan 17: Ready   Chan 18: Ready
Chan 19: Ready   Chan 20: Ready
Chan 21: Ready   Chan 22: Ready
Chan 23: Ready   Chan 24: Ready
Chan 25: Ready   Chan 26: Ready
Chan 27: Ready   Chan 28: Ready
Chan 29: Ready   Chan 30: Ready
Modem Channels (card 1)
Chan 01 (3A): Idle     Chan 02 (3B): Idle
Chan 03 (3C): Idle     Chan 04 (3D): Idle
Chan 05 (3E): Idle     Chan 06 (3F): Idle
Chan 07 (3G): Idle     Chan 08 (3H): Idle
Chan 09 (3I): Idle     Chan 10 (3J): Idle
Chan 11 (3K): Idle     Chan 12 (3L): Idle
Chan 13 (3M): Idle     Chan 14 (3N): Idle
Chan 15 (3O): Idle     Chan 16 (3P): Idle
Modem Channels (card 2)
Chan 01 (4A): Idle     Chan 02 (4B): Idle
Chan 03 (4C): Idle     Chan 04 (4D): Idle
Chan 05 (4E): Idle     Chan 06 (4F): Idle
Chan 07 (4G): Idle     Chan 08 (4H): Idle
Chan 09 (4I): Idle     Chan 10 (4J): Idle
Chan 11 (4K): Idle     Chan 12 (4L): Idle
Chan 13 (4M): Idle     Chan 14 (4N): Idle
Chan 15 (4O): Idle     Chan 16 (4P): Idle
```

getrack

Parameter: *None*

Description: Displays the current Rack Type.

Security: Supervisor

Example:

```
getrack
Chassis Type: CC2400 single segment chassis
[2] A:\ #
```

getras

Parameter: *Device*

Description: Displays the current status of each ras device.

Security: Operator

Example:

```
[0] A:\MMM # getras
 1A    RAS    Up
 5A    RAS    Up
 9A    RAS    Up
13A    RAS    Up
```

getreadcommunity

Parameter: *None*

Description: Displays the Read community settings.

Security: Supervisor

Example:

```
[0] A:\MMM # getreadcommunity
Read community = public
Enter SETREADCOMMUNITY <community-string> to change it.
[1] A:\ #
```

getsendtrap

Parameter: *None*

Description: Displays whether or not traps are being sent from the MR9600. See *setsendtrap*.

Security: Guest

Example:

```
[0] A:\ # getsendtrap
The sending of traps is enabled.
[1] A:\ # setsendtrap off
The sending of traps has been successfully disabled.
[2] A:\ # getsendtrap
The sending of traps is disabled.
```

getslots

Parameter: *None*

Description: Displays hardware type and location within the rack. This command also displays the number of devices in each slot.

Security: Operator

Example:

```
[0] A:\ # getslots
1  MTRAS96-T1A   2
2  MT5634HD8     8
3  MT5634HD8     8
4  MT5634HD8     8
```

getsubnet

Parameter: *None*

Description: Displays the subnet mask for the MR9600.

Security: Guest

Example:

```
[0] A:\MMM # getsubnet
Subnet mask = 255.255.255.0
[1] A:\MMM #
```

gett1

Parameter: *Device*

Description: Displays the current status of each t1 device

Security: Operator

Example:

```
[0] A:\MMM # gett1
 5B    T1    Online
13B    T1    Online
```

gettemp

Parameter: *None*

Description: Displays the internal ambient temperature of the rack in Fahrenheit and Celsius.

Security: Guest

Limitations: CC9600 Only

Example:

```
[03] A:\ # gettemp
76.4 degrees Fahrenheit
24.7 degrees Celsius
```

gettrap

Parameter: *None*

Description: Displays the default trap IP address for the MR9600, if one is set. This is the address to which MR9600-generated traps, such as fault and status traps, are sent.

Security: Guest

Example:

```
[0] A:\MMM # gettrap
Trap IP Address = 199.199.99.91
[1] A:\MMM #
```

getwritecommunity

Parameter: *None*

Description: Displays the Write community settings.

Security: Supervisor

Example:
```
[0] A:\MMM # getwritecommunity
Write community = public
Enter SETWRITECOMMUNITY <community-string> to change it.
[1] A:\MMM #
```

haltsys

Parameter: *None*

Description: This halts all backplane and SNMP processing in the controller. It is done automatically (and a resumesys when the update is done) when the controller firmware is updated.

Security: Supervisor

Example:
```
[0] A:\MMM # haltsys
Backplane processing has been stopped
```

history

Parameter: *None*

Description: Displays the command history buffer.

Security: Guest

Example:
```
[4] A:\ # history
    0 VER
    1 CLOCK
    2 VER
    3 CLOCK
    4 HISTORY
[5] A:\ #
```

listmod

Parameter: *None*

Description: Lists loaded modules. When modules have the same name, it's the non-built-in that is run. The memory addresses listed are for technical support purposes.

Example:
```
[0] A:\MODULES # listmod
Module     Memory     Load      Start     Last Mod Date/Time   Built-In
NOCALL    004af032  004af032  004af032                         Yes
VERSION   004af45c  004af45c  004af45c                         Yes
NOCALL    005eea3c  005eea3c  005eea40  11/7/2000-11:42am      No
```

lo, logout

Parameter: *None*

Description: The **logout** command ends the session for the current user, and displays the **userid** prompt on the monitor.

Security: Guest

Example:
```
[0] A:\MMM # lo
Bye.
UserName:
```

loadmod

Parameter: *None*

Description: Loads a module into memory. If loaded successfully, then the module is available to be run.

Example:
```
[0] A:\MODULES # loadmod nocall
Module <NOCALL> loaded successfully
```

ls

See *dir*.

md, mkdir

Parameter: *Pathname*

Description: Make directory. The **md** command creates a directory with the path and file name assigned by the *pathname* parameter.

Security: Supervisor

Example:
```
[0] A:\MMM # md mr.log
[1] A:\MMM # cd mr.log
[2] A:\MMM\MR.LOG #
```

more

Parameter: *Filename or Path*

Description: Displays the contents of a file, one page at a time. The user may press any key to continue, or type the letter Q to quit.

Security: Guest

Example:
```
[04] A:\MMM # more mr4800.ini
[SecurityConfig]
UseridPrompt = ^m^jUserid:
PasswordPrompt = ^m^jPassword:
.
.
.
```

```
[SecurityFile]
NumberOfFile=0
[NetWorkDefaults]
Default Gateway = 192.168.10.151
--More--
```

mount

Parameter: *Drive Specifier*

Description: Make the specified drive available to the operating system.

Security: Supervisor

Example:

```
[01] [No Drive Mounted] # mount a:
[02] A:\ #
```

oc, oosclear, oosclr

Parameter: *Device*

Description: Puts the specified devices in service by clearing the Out Of Service flag.

Security: Operator

Limitations: There is no effect if the Out of Service flag is not set for the modems.

Example:

```
[0] A:\MMM # oc 1a
[1] A:\MMM #
```

online

Parameter: *Device*

Description: Goes online in command mode with a device to check configuration information and firmware version information. This does not create a fully functional terminal, but is available to set and check configuration information.

Security: Operator

Example:

```
[0] A:\ # online 6a:6c
==== Online with device: Slot 06 Device A      ====
==== type "<esc> and ?" to display help information ====
<esc>?
+------------------------------------+
! <esc> again to exit terminal mode   !
! b   to move back in device list      !
! c   to clear the screen             !
! n   to move forward in device list  !
! 1   send stored command 1 to device  !
! 2   send stored command 2 to device  !
! 3   send stored command 3 to device  !
! 4   send stored command 4 to device  !
! ?   to display this help menu        !
+------------------------------------+
atl5
B1 E1 M1 Q0 R0 V1 X4 &E1 &E4 &E6 &E8 &E10 &E13 &E15 %C0 #C1 *C0
&C1 *H0
$MB33600 $SB115200 $BA0 &W1
OK
<esc>n
```

```
==== Current device is: Slot 6 Device B ====
atl5
B1 E1 M1 Q0 R0 V1 X4 &E1 &E4 &E6 &E8 &E10 &E13 &E15 %C0 #C1 *C0
&C1 *H0
$MB28800 $SB57600 $BA0 &W1
OK
<esc>n
==== At end of list: Slot 6 Device C ====
atl5
B1 E1 M1 Q0 R0 V1 X4 &E1 &E4 &E6 &E8 &E10 &E13 &E15 %C0 #C1 *C0
&C1 *H0
$MB28800 $SB57600 $BA0 &W1
OK
<esc>b
==== Current device is: Slot 6 Device B ====
<esc><esc>
Goodbye!
[1] A:\ #
```

oosset, os

Parameter: *Device*

Description: Sets the Out Of Service flag for the modems specified by *device*.

Security: Operator

Limitations: If the modems are connected when the command is issued, they will remain off hook when the call is completed.

Example:

```
[0] A:\MMM # os 1a
[1] A:\MMM #
```

passwd, password

Parameter: *None*

Description: The **passwd** command allows you to change your password by prompting you for the current password and a new password.

Security: Guest

Example:

```
[0] A:\MMM # passwd
Current password: *****
New password: *****
Repeat new password: *****
Security information updated
[1] A:\MMM #
```

ping

Parameter: *IP Address*

Description: This allows the controller to ping another IP address to check for network connectivity.

Security: Guest

Example:

```
[1] A:\MMM # ping 192.168.4.7
Reply from 192.168.4.7: bytes=32 time=7ms
Reply from 192.168.4.7: bytes=32 time=7ms
Reply from 192.168.4.7: bytes=32 time=7ms
```

```
Reply from 192.168.4.7: bytes=32 time=7ms
```

poweroff

Parameter: *Segment Number*

Description: This removes power from a given segment.

Security: Supervisor

Limitation: Works only on Rev. C CC9600 cages

Example:
```
[0] A:\MMM # poweroff 3
Power OFF of segment 3
```

poweron

Parameter: *Segment Number*

Description: This applies power from a given segment.

Security: Supervisor

Limitation: Works only on Rev. C CC9600 cages

Example:
```
[0] A:\MMM # poweron 3
Power ON of segment 3
```

priocbchannels

Parameter: *<device>.<channel>*

Description: Sets the specified channel in service

Security: Supervisior

Example:
```
[03] A:\# priocbchannel 2a.1
[04] A:\# getprichannels 2a
getting PRI Info
Bchannels
Chan 01: Ready   Chan 02: Ready
Chan 03: Ready   Chan 04: Ready
Chan 05: Ready   Chan 06: Ready
Chan 07: Ready   Chan 08: Ready
Chan 09: Ready   Chan 10: Ready
Chan 11: Ready   Chan 12: Ready
Chan 13: Ready   Chan 14: Ready
Chan 15: Ready   Chan 16: Ready
Chan 17: Ready   Chan 18: Ready
Chan 19: Ready   Chan 20: Ready
Chan 21: Ready   Chan 22: Ready
Chan 23: Ready   Chan 24: Ready
Chan 25: Ready   Chan 26: Ready
Chan 27: Ready   Chan 28: Ready
Chan 29: Ready   Chan 30: Ready
Modem Channels (card 1)
Chan 01 (3A): Idle     Chan 02 (3B): Idle
Chan 03 (3C): Idle     Chan 04 (3D): Idle
Chan 05 (3E): Idle     Chan 06 (3F): Idle
Chan 07 (3G): Idle     Chan 08 (3H): Idle
Chan 09 (3I): Idle     Chan 10 (3J): Idle
Chan 11 (3K): Idle     Chan 12 (3L): Idle
```

```
Chan 13 (3M): Idle      Chan 14 (3N): Idle
Chan 15 (3O): Idle      Chan 16 (3P): Idle
Modem Channels (card 2)
Chan 01 (4A): Idle      Chan 02 (4B): Idle
Chan 03 (4C): Idle      Chan 04 (4D): Idle
Chan 05 (4E): Idle      Chan 06 (4F): Idle
Chan 07 (4G): Idle      Chan 08 (4H): Idle
Chan 09 (4I): Idle      Chan 10 (4J): Idle
Chan 11 (4K): Idle      Chan 12 (4L): Idle
Chan 13 (4M): Idle      Chan 14 (4N): Idle
Chan 15 (4O): Idle      Chan 16 (4P): Idle
[05] A:\#
```

priosbchannels

Parameter: *<device>.<channel>*

Description: Sets the specified channel out of service

Security: Supervisior

Example:
```
[03] A:\# priosbchannel 2a.1
[04] A:\# getprichannels 2a
getting PRI Info
Bchannels
Chan 01: OOS     Chan 02: Ready
Chan 03: Ready   Chan 04: Ready
Chan 05: Ready   Chan 06: Ready
Chan 07: Ready   Chan 08: Ready
Chan 09: Ready   Chan 10: Ready
Chan 11: Ready   Chan 12: Ready
Chan 13: Ready   Chan 14: Ready
Chan 15: Ready   Chan 16: Ready
Chan 17: Ready   Chan 18: Ready
Chan 19: Ready   Chan 20: Ready
Chan 21: Ready   Chan 22: Ready
Chan 23: Ready   Chan 24: Ready
Chan 25: Ready   Chan 26: Ready
Chan 27: Ready   Chan 28: Ready
Chan 29: Ready   Chan 30: Ready
Modem Channels (card 1)
Chan 01 (3A): Idle      Chan 02 (3B): Idle
Chan 03 (3C): Idle      Chan 04 (3D): Idle
Chan 05 (3E): Idle      Chan 06 (3F): Idle
Chan 07 (3G): Idle      Chan 08 (3H): Idle
Chan 09 (3I): Idle      Chan 10 (3J): Idle
Chan 11 (3K): Idle      Chan 12 (3L): Idle
Chan 13 (3M): Idle      Chan 14 (3N): Idle
Chan 15 (3O): Idle      Chan 16 (3P): Idle
Modem Channels (card 2)
Chan 01 (4A): Idle      Chan 02 (4B): Idle
Chan 03 (4C): Idle      Chan 04 (4D): Idle
Chan 05 (4E): Idle      Chan 06 (4F): Idle
Chan 07 (4G): Idle      Chan 08 (4H): Idle
Chan 09 (4I): Idle      Chan 10 (4J): Idle
Chan 11 (4K): Idle      Chan 12 (4L): Idle
Chan 13 (4M): Idle      Chan 14 (4N): Idle
Chan 15 (4O): Idle      Chan 16 (4P): Idle
[05] A:\#
```

prisetup

Parameter: *Drive Specifier*

Description: Set configuration parameters for a PRI card.

Security: Operator

Example:
```
[1] A:\MMM # prisetup 10a
Use settings from:
  1. Use Active Settings (pre-configured card)
  2. Use System Defaults (new card)
  3. Use Stored Settings (swapping cards)
Enter Selection (q(uit), <1>): 1
Getting PRI Info .....
  1. Switch Type :AT&T 5ESS
  2. Line Coding :Binary 8 Zero Substitution (B8ZS)
  3. Framing Format :Extended Super Frame
  4. Error Correction (CRC4/6):Enabled
  5. Call Distribution :One to One
  6. Set Carrier :PCM24/T1
  7. Active Channels :23
Enter Selection (-(previous), q(uit), d(one), <1>):
```

pristatus

Parameter: *Drive Specifier*

Description: Retrieve the current status of the specified PRI card

Security: Operator

Example:
```
[2] A:\MMM # pristatus 10a
Getting PRI Info ....
            Switch Type:AT&T 5ESS
            Line Coding:Binary 8 Zero Substitution (B8ZS)
         Framing Format:Extended Super Frame
  Error Correction (CRC4/6):Enabled
       Call Distribution:One to One
            Set Carrier:PCM24/T1
         Active Channels:23
                  Model:MTPRI-HD23B
                Version:2.57E.44 / 232
         Layer 1 Status:Up
         Layer 2 Status:Multi-Frame Established
      Number of Channels:23
```

quit

Parameter: *None*

Description: Logs the User off of the system.

Security: Guest

Example:
```
[05] A:\ # quit
Bye.
Username:
```

rassetup

Parameter: *Device*

Description: Sets the RASExpress configuration associated with a RAS Card. The device specified must be a RAS card device.

Security: Supervisor

Example:

```
[1] A:\ # rassetup 13a
Use settings from:
  1. Use Active Settings (pre-configured card)
  2. Use System Defaults (new card)
Enter Selection (q(uit), <1>): 1
Getting Ras Info ..
  1. Version: 5.6.0
  2. IP Address:204.26.122.125
  3. Subnet Mask:255.255.255.128
  4. Default Gateway:204.26.122.1
  5. Primary DNS Server:204.147.80.1
  6. Backup DNS Server:204.147.80.5
  7. Frame Type:TYPE_II
  8. Address Method:RADIUS
  9. RAS Express Password :********
  10. Protocol:RADIUS
  11. Primary Server:204.26.122.122
  12. Secondary Server:0.0.0.0
  13. Shared Secret Password :********
Enter Selection (-(previous), q(uit), d(one), <1>):
```

rasstatus

Parameter: *Device*

Description: Interrogates the status of the RAS device. RAS card devices are 1a, 5a, 9a, 13a.

Security: Supervisor

Example:

```
[1] A:\ # rasstatus 13a
 Getting Ras Info
               Version: 5.6.0
            IP Address: 204.26.122.125
           Subnet Mask:255.255.255.128
       Default Gateway:204.26.122.1
    Primary DNS Server:204.147.80.1
     Backup DNS Server:204.147.80.5
            Frame Type:TYPE_II
        Address Method:RADIUS
  RAS Express Password:********
              Protocol:RADIUS
        Primary Server:204.26.122.122
      Secondary Server:0.0.0.0
 Shared Secret Password:********
```

rd, remdir

Parameter: *Pathname*

Description: Remove directory. The **rd** command deletes the directory specified by *pathname.*

Security: Supervisor

Limitations: The directory must be empty before **rd** can delete it. The **rd** command cannot delete a directory's subdirectories.

Example:

```
[0] A:\MMM # rd mr.log
[1] A:\MMM #
```

readme

Parameter: *None*

Description: Displays a summary of the most recent modifications made to the firmware for the MR9600.

Security: Operator

Example:

```
[0] A:\ # readme
MR9600 version 1.02 release information
-- 1. Web Server functionality --------
. . .
-- 2. MR9600 MIB --------
. . .
-- 3. Known Limitations --------
. . .
[1] A:\ #
```

ren, rename

Parameter: *Pathname1 Pathname2*

Description: Renames the file *Pathname1* to *Pathname2*.

Security: Supervisor

Example:

```
[0] A:\ # ren temp.txt temp1.txt
[1] A:\ #
```

rendir

Parameter: *Pathname1 Pathname2*

Description: Renames the directory *Pathname1* to *Pathname2*.

Security: Supervisor

Example:

```
[0] A:\ # rendir MMM MMM1
[1] A:\ #
```

reset, rs

Parameter: *Device*

Description: Resets the specified modems by cycling their power. Any modems that are connected will disconnect.

Security: Operator

Example:

```
[0] A:\ # reset 1a
[1] A:\ #
```

resumesys

Parameter: *None*

Description: This resumes all backplane and SNMP processing in the controller. It is done automatically after the controller firmware is updated (haltsys is done automatically at the beginning of the update).

Security: Supervisor

Example:
```
[0] A:\MMM # resumesys
Resume processing
```

rm

See *del.*

rs

See *reset.*

se, setenviron

Parameter: *None*

Description: Allows you to check or change the environment values for the MR9600, to set the defaults for use in the whole system, and to set up any component of the system.

Security: Supervisor

Example:

```
[0] A:\ # se
Getting System Defaults
MultiCommManager Environment Setup
  1. System Defaults Setup (Required)
  2. Device Specific Setup (Required)
Enter Selection (q(uit), <1>): 1
```

security

Parameter: *None*

Description: Prompts you to change the user ID and password for any security levels lower than your own.

Security: Supervisor

Example:
```
[0] A:\MMM # security
Modify security information for which security level:
  1. Guest level
  2. Operator level
  3. Supervisor level
Which one? 1
Enter User ID : guest
Enter new password : *****
Repeat new password : *****
Security information updated
[1] A:\MMM #
```

setconfig

Parameter: *Pathname Device*

Description: Associates a configuration file with a particular modem or modems .

Security: Operator

Example:

```
[0] A:\ # getmodems
2A Idle   default.cfg          Unassigned        Dial Up No Security
2B Idle   default.cfg          Unassigned        Dial Up No Security
2C Idle   default.cfg          Unassigned        Dial Up No Security
4A Idle   default.cfg          Unassigned        Dial Up No Security
4B Idle   default.cfg          Unassigned        Dial Up No Security
4C Idle   default.cfg          Unassigned        Dial Up No Security
[1] A:\ # setconfig unix.cfg 2a:2c
[2] A:\ # setconfig rsa.cfg 4a:4c
[3] A:\ # getmodems
2A Idle   unix.cfg             Unassigned        Dial Up No Security
2B Idle   unix.cfg             Unassigned        Dial Up No Security
2C Idle   unix.cfg             Unassigned        Dial Up No Security
4A Idle   rsa.cfg              Unassigned        Dial Up No Security
4B Idle   rsa.cfg              Unassigned        Dial Up No Security
4C Idle   rsa.cfg              Unassigned        Dial Up No Security
```

setfkey1, setfkey2, setfkey3, setfkey4

Parameter: *Command String*

Description: Creates command macros for the online function keys. These function keys are available for use when one is online with a modem. See *online*.

Security: Operator

Example:

```
[0] A:\ # getfkey1
Function Key 1: "ATL5"
[1] A:\ # setfkey1 ATL5L6L7
Function Key 1: "ATL5L6L7"
[2] A:\ # getfkey1
Function Key 1: "ATL5L6L7"
```

setgateway

Parameter: *IP Address*

Description: Changes the default gateway address to the one specified by the *IP Address* parameter. *See se.*

Security: Supervisor

Example:

```
[0] A:\ # setgateway 199.199.199.191
Gateway IP Address 199.199.199.191 stored
[1] A:\ #
```

setip

Parameter: *IP Address*

Description: Changes the MR9600's IP address to the one specified by the *IP Address* parameter. *See se.*

Security: Supervisor

Example:

```
[0] A:\ # setip 199.199.199.44
IP Address 199.199.199.44 stored
[1] A:\ #
```

setpollingoff

Parameter: *Device*

Description: Disables controller generated polling to specified device. The example below starts with displaying the status of the back plane by using the *bpstatus* command.

Security: Supervisor

Example:

```
[1] A:\ # bpstatus
Backplane Status:            Busy:NoResp:NoAck
-:no polling 0:count of 0    1-9: tens digit plus 1     *:>=ninety
Slot A   B   C   D   E   F   G   H   I   J   K   L   M   N   O   P
5:  000 000
6:  000 000 000 000 000 000 000 000
7:  000 000 000 000 000 000 000 000
8:  000 000 000 000 000 000 000 000
9:  000 000
10: 000 000 000 000 000 000 000 000
11: 000 000 000 000 000 000 000 000
12: 000 000 000 000 000 000 000 000

[2] A:\# setpollingoff 5a

[3] A:\# bpstatus
Backplane Status:            Busy:NoResp:NoAck
-:no polling 0:count of 0    1-9: tens digit plus 1     *:>=ninety
Slot A  B   C   D   E   F   G   H   I   J   K   L   M   N   O   P
5:  --- 000
6:  000 000 000 000 000 000 000 000
7:  000 000 000 000 000 000 000 000
8:  000 000 000 000 000 000 000 000
9:  000 000
10: 000 000 000 000 000 000 000 000
11: 000 000 000 000 000 000 000 000
12: 000 000 000 000 000 000 000 000
```

setpollingon

Parameter: *Device*

Description: Re-enables polling bewtween controller and specified device. The example below starts with displaying the status of the back plane by using the *bpstatus* command.

Security: Supervisor

Example:

```
[4] A:\ # bpstatus
Backplane Status:            Busy:NoResp:NoAck
-:no polling 0:count of 0    1-9: tens digit plus 1     *:>=ninety
Slot A  B   C   D   E   F   G   H   I   J   K   L   M   N   O   P
5:  --- 000
6:  000 000 000 000 000 000 000 000
7:  000 000 000 000 000 000 000 000
8:  000 000 000 000 000 000 000 000
9:  000 000
10: 000 000 000 000 000 000 000 000
11: 000 000 000 000 000 000 000 000
```

```
12: 000 000 000 000 000 000 000
[5] A:\# setpollingon 5a
[6] A:\# bpstatus
Backplane Status:              Busy:NoResp:NoAck
-:no polling  0:count of 0    1-9: tens digit plus 1    *:>=ninety
Slot A  B  C  D  E  F  G  H  I  J  K  L  M  N  O  P
5:  000 000
6:  000 000 000 000 000 000 000 000
7:  000 000 000 000 000 000 000 000
8:  000 000 000 000 000 000 000 000
9:  000 000
10: 000 000 000 000 000 000 000 000
11: 000 000 000 000 000 000 000 000
12: 000 000 000 000 000 000 000 000
[7] A:\ #
```

setreadcommunity

Parameter: *None*

Description: Changes the Read community settings.

Security: Supervisor

Example:
```
[0] A:\ # setreadcommunity public
Read Community public stored
[1] A:\ #
```

setsendtrap

Parameter: *On, off*

Description: Configures the MR9600 controller whether or not to send traps to an SNMP manager or MultiCommManager console.

Security: Supervisor

Example:
```
[0] A:\ # getsendtrap
The sending of traps is enabled.
[1] A:\ # setsendtrap off
The sending of traps has been successfully disabled.
[2] A:\ # getsendtrap
The sending of traps is disabled.
```

setsubnet

Parameter: *IP Address Mask*

Description: Changes the subnet mask to the mask specified in the parameter. *See se.*

Security: Supervisor

Example:
```
[0] A:\ # setsubnet 255.255.255.0
Subnet mask 255.255.255.0 stored
[1] A:\ #
```

settrap

Parameter: *IP Address*

Description: Changes the default trap IP address to the one specified in the parameter. This IP address is where fault and status traps are sent. See *se*.

Security: Supervisor

Limitations: Only one default trap address may be set at a time.

Example:
```
[0] A:\ # settrap 199.199.199.6
Trap IP Address 199.199.199.6 stored
[1] A:\ #
```

setwritecommunity

Parameter: *None*

Description: Changes the Write community settings.

Security: Supervisor

Example:
```
[0] A:\ # setwritecommunity public
Write Community public stored
[1] A:\ #
```

sync

Parameter: *None*

Description: Writes oustanding events (events that normally get written every hour) to the B:\#MMM\MR.log directory. The file will be named the current date and hour with an hour extension.

Security: Operator

Example:
```
[01] A:\ # sync
[02] A:\ #
```

t, time

Parameter: *None*

Description: Prompts you to change the time on the MR9600.

Security: Operator

Limitations: The time is not corrected for daylight savings time.

Example:
```
[0] A:\MMM # t
The current time is: 4:59pm
Enter the new time: hh:mm 17:10
[1] A:\MMM # cl
10/30/1996 5:10pm
[2] A:\MMM # t
The current time is: 5:10pm
Enter the new time: hh:mm 5:12pm
[3] A:\MMM # cl
```

```
10/30/1996 5:12pm
```

t1cfg

Parameter: *Device*

Description: Sends T1 configuration information stored in nonvolatile memory to the specified device. The specified device must be a T1 device. T1 devices can exist only at 1b, 1c, 5b, 5c, 9b, 9c, 13b, and 13c.

Security: Operator

Example:
```
[0] A:\MMM # t1cfg 1b,5b,9b,13b
```

t1channelstatus, t1chstatus

Parameter: *Device*

Description: Displays the status of all the channels for the given T1 device.

Security: Guest

Example:
```
[0] A:\MMM # t1chstatus 13b
Channel   CO        Modem   OOS   Channel       CO        Modem     OOS
  1      On Hook   On Hook          2        On Hook   On Hook
  3      On Hook   On Hook          4        On Hook   On Hook
  5      On Hook   On Hook          6        On Hook   On Hook
  7      On Hook   On Hook          8        On Hook   Timeout
  9      On Hook   On Hook         10        On Hook   On Hook
 11      On Hook   On Hook         12        On Hook   On Hook
 13      On Hook   On Hook         14        On Hook   On Hook
 15      On Hook   On Hook         16        On Hook   On Hook
 17      On Hook   On Hook         18        On Hook   On Hook
 19      On Hook   On Hook         20        On Hook   On Hook
 21      On Hook   On Hook         22        On Hook   On Hook
 23      On Hook   On Hook         24        On Hook   On Hook
CO - Central Office, * - Inconsistent State
```

t1debug

Parameter: *Device*

Description: Displays the status of AB Signalling bits for both the transmit and receive directions of each DSO channel for the specified T1 device within the CommPlete. TX = from CommPlete T1 card to central office. RX = from central office to CommPlete T1 card.

Security: Supervisor

Limitation: CC9600 only

Example:
```
[31] A:\ # t1debug 1b
1.  Enable Signal Bit monitoring
2.  Turn Off signal bit monitoring
3.  Signal Poll interval (4)
=> 1
Completed enabling all selected devices!
[32] A:\ #
  01B         01B
  Tx/Rx       Tx/Rx
  AB/AB       AB/AB
```

```
01 00/00     02 00/00
03 00/00     04 00/00
05 00/00     06 00/00
07 00/00     08 00/00
09 00/00     10 00/00
11 00/00     12 00/00
13 00/00     14 00/00
15 00/00     16 00/00
17 00/00     18 00/00
19 00/00     20 00/00
21 00/00     22 00/00
23 00/00     24 00/00
E&M Immediate Start Protocol Tx(AB)  Rx(AB)
            OFF HOOK       11     11
            ON HOOK        00     00
            RINGING        NA     NA
[33] A:\ # t1debug 1 b

1. Enable Signal Bit monitoring
2. Turn Off signal bit monitoring
3. Signal Poll interval (4)
=> 2
```

t1setup

Parameter: *Device*

Description: Sets the T1 configuration information associated with a T1 device. This information is stored in a nonvolatile area of memory so that the device can be properly reconfigured on power-up or reset. The specified device must be a T1 device. T1 devices can exist only at 1b, 1c, 5b, 5c, 9b, 9c, 13b, and 13c.

Security: Supervisor

Example:

```
[0] A:\MMM # t1setup 5b
Use settings from:
  1. Use Active Settings (pre-configured card)
  2. Use System Defaults (new card)
  3. Use Stored Settings (swapping cards)
Enter Selection (q(uit), <1>): 1

Getting T1 Card Info ....
  1. Wink High Time (ms) :220
  2. After Wink Time (ms) :500
  3. PreWink Time (ms) :220
  4. Channel Polling Interval (Sec):0
  5. Error Threshold :6
  6. Disconnect Timeout (sec) :11
  7. Framing Format :DS1 AT&T Extended Super Frame (ESF)
  8. Line Coding :Binary 8 Zero Substitution (B8ZS)
  9. FXS Signaling Options :E&M Immediate Start
  10. Transmit Level :- 0.0dB
Enter Selection (-(previous), q(uit), d(one), <1>):
```

t1status

Parameter: *Device*

Description: Interrogates the status of the specified T1 device. The specified device must a T1 device. T1 devices can exist only at 1b, 1c, 5b, 5c, 9b, 9c, 13b, and 13c.

Security: Guest

Example:

```
[1] A:\MMM # t1status 5b
```

```
Getting T1 Card Info ....
T1 Card Status:
             Wink High Time (ms):220
            After Wink Time (ms):500
               PreWink Time (ms):220
  Channel Polling Interval (Sec):0
                  Error Threshold:6
         Disconnect Timeout (sec):11
                    Framing Format:DS1 AT&T Extended Super Frame (ESF)
                      Line Coding:Binary 8 Zero Substitution (B8ZS)
           FXS Signaling Options:E&M Immediate Start
                  Transmit Level:- 0.0dB
                   Receive Level:+2.0db to -7.5db
                 LED Information:Online
Model:RAS9600-T1
Version:1.08/1.06
```

type

See *cat*.

unloadmod

Parameter: *Module Name*

Description: Unloads a module into memory. If unloaded successfully, the module is no longer available to run.

Example:

```
[0] A:\MODULES # unloadmod nocall
Module <NOCALL> unloaded successfully
```

unmount

Parameter: *Drive Specifier*

Description: Remove the drive from the operating system. This is commonly done before formatting the drive.

Security: Supervisor

Example:

```
[01] A:\# unmount b:
[02] A:\ # format b:
[03] B:\ #
```

update

Parameter: *Pathname Device*

Description: Updates the firmware of the controller, of a T1 device, or of up to eight modems. *Pathname* is the path of the file used to update the firmware. The file name extension determines which device is updated: .HXC updates the controller; .HXT updates the T1 card; and .HEX updates modems.

Security: Operator

Limitations: Only one update can be performed at one time.

Example:

```
update hd8803t.hex 2b:2h
Update started.
```

```
[11] A:\MMM # update
Percent Done = 03%
2B Updating
2C Updating
2D Updating
2E Updating
2F Updating
2G Updating
2H Updating
[12] A:\ # abort 2b
Are you sure you wish to abort the update? (y/n) y
Aborting . . .
```

upload

Parameter: *Pathname*

Description: Uploads from a computer connected to the MR9600 controller's serial port connector the file specified by *pathname*. Before uploading, binary files must be converted to ASCII data on the source computer using a utility supplied by Multi-Tech. The format for the data is one or more lines of hexadecimal data up to 80 characters in length, where each hexadecimal value is bracketed by square brackets (e.g., [2b][3c]...[1c]). When the file has been uploaded, press ESC or CTRL+D to complete the upload.

Note: For debugging use only under the direction of Technical Support personnel. Files will normally be transferred using FTP.

Security: Supervisor

Limitations: Only ASCII files can be uploaded. This command does not support flow control, so the files should be uploaded using an ASCII file transfer protocol with a 1 millisecond delay between lines.

Example:
```
[0] A:\MMM # upload mr9600.db
```
...data uploaded here...
```
2192 byte(s) written to 'mr9600.db'
[1] A:\MMM #
```

uptime

Parameter: *Device* or *None*

Description: If no arguments are given, this displays the date and time since the last boot. If arguments are given, then the time that the device(s) has been up is given in days, hours, minutes and seconds.

Security: Operator

Example:
```
[05] A:\ # uptime
System up since – 1/8/2000 2:57pm - 0 Days 2 Hours 7 Minutes 5 Seconds
[06] A:\ # uptime 5a:6p
System up since - 1/8/2000 3:45pm - 0 Days 2 Hours 7 Minutes 12 Seconds
 5A   RAS   up for 000-00:55:03
 5B   T1    up for 000-00:55:03
 6A   Modem up for 000-00:55:03
 6B   Modem up for 000-00:55:03
 6C   Modem up for 000-00:55:02
 6D   Modem up for 000-00:55:02
 6E   Modem up for 000-00:55:02
```

usage

Parameter: *Time in Minutes*

Description: Displays how many modems fit the following parameters: received inbound calls, made outbound calls, were Out Of Service (OOS), were not respnding and were free per specified time intervals since the controller was last started (24 clock and specifier is in minutes). The example below shows the controller came up at 1:00 PM, has been running for 20 minutes and has taken 4 inbound calls.

Security: Operator

Example:

```
[01] A:\ # Usage 10
Time   Inbound   Outbound     OOS     NotResp      Free   Total
13:00  0         0            0       0            23     24
13:10  0         0            0       0            24     24
13:20  4         0            0       0            20     24
[02] A:\ #
```

userid

Parameter: *None*

Description: Changes your user ID by prompting you for your current user ID and new user ID.

Security: Guest

Example:

```
[0] A:\MMM # userid
Current user id: super
New user id: supervisor
Security information updated
[1] A:\MMM #
```

ver, version

Parameter: *Device* or *None*

Description: Displays the current version of the controller (if no arguments are given) or the current versions of the devices that are listed.

Security: Guest

Example:

```
[0] A:\ # ver
Version 2.10 (Jan 09 1998 18:06:37)
[1] A:\ # ver 5a:6p
5A    RAS    MTRAS96         5.6.0
5B    T1     RAS9600-T1      1.08/1.06
6A    Modem  MT5634HD8       1.10V
6B    Modem  MT5634HD8       1.10V
6C    Modem  MT5634HD8       1.10V
6D    Modem  MT5634HD8       1.10V
6E    Modem  MT5634HD8       1.10V
6F    Modem  MT5634HD8       1.10V
6G    Modem  MT5634HD8       1.10V
6H    Modem  MT5634HD8       1.10V
```

whoami

Parameter: *None*

Description: Displays the user ID of the user who is logged on, and the user's security level.

Security: Guest

Example:

```
[0] A:\MMM # whoami
supervisor with < supervisor> access rights
[1] A:\MMM #
```

Error Messages

This section lists the MR9600's error messages and their possible causes. Many error messages are caused by human error. When you receive an error message when executing a command, ask the following questions first:

- Did you spell the command correctly?
- Do you have access rights to the command?
- Do you have the correct number of parameters in the correct format?

ERROR: Illegal command

The command is spelled wrong, or you have the wrong number or incorrect parameters.

ERROR: Invalid IP address, format *###.###.###.###*

The IP address is not 4 groups of up to 3 digits separated by a period. The IP address has no components with a value greater than 255.

ERROR: Invalid user id — user id not changed

The user ID contains an invalid character.

ERROR: Unable to perform command

User does not have the security access to execute the command.

ERROR: Make directory 'DIRNAME' failed.

The subdirectory 'DIRNAME' already exists.

ERROR: Unable to rename 'DIR1' to 'DIR2'

DIR1 does not exist, or you are attempting to rename the current working directory.

ERROR: Online session already exists

The **online** command is active by either a Telnet session or a terminal attached to the CC9600.

ERROR: No history is being maintained

The command history buffer is empty or not being maintained by the command line interface.

ERROR: Password not changed

The old password does not match the stored password; the new password is invalid; or the new password and the repeated new password do not match.

ERROR: Unknown error

An error of unknown origin occurred while the MR9600 was attempting to parse a command line.

ERROR: Bad or missing configuration file

The specified configuration file is not present on the system. It is possible that the file name is incorrectly spelled.

ERROR: Invalid number

The specified number is not a valid hex number starting with $ or a valid decimal number starting with a digit.

ERROR: Invalid device specifier

The device specifier is invalid since it is not of the format ia, where i represents the slot number for the device and a represents the device number. See "Parameter Types" on page 22.

ERROR: Invalid drive specifier

The specified drive letter does not belong to a drive that is available to the system.

ERROR: Security information not changed

The new user ID is invalid. The new password is invalid; or the new password and the repeated new password do not match.

ERROR: Unable to update security information

The CMOS write error failed when updating the security information.

6 Solving Problems

Introduction

This chapter provides information needed to identify and fix problems with the MR9600. Problems can be diagnosed by observing the LED indicators on the MR9600's front panel, or through the dedicated management console's screen. Also, problems can be found by performing the diagnostic tests documented in Chapter 8 of the MultiCommManager Owner's Manual.

For specific MultiModem troubleshooting information, refer to the MultiModem *Owner's Manual* shipped with your MultiModem. For basic Windows messages, refer to your Windows manual or Help screens. For a description of the MR9600's LED indicators, see Chapter 1.

MR9600 Diagnostic Tests

If you suspect that your MR9600 is not functioning properly, you can run the following diagnostic tests to test the MR9600's hardware capabilities.

1. Refer to Figure 3 on page 8 to locate the test jumper on the MR9600 Controller card. Put the test jumper into the loopback position, so the two pins are shorted together. Reinstall the MR9600 assembly into the CC9600 chassis. Plug the 10Base-T loopback jumper into the Ethernet connector labeled "LAN" on the rear of the CC9600 chassis.

2. Run MultiExpress or another datacomm program on a PC at *115,200 bps* with *no flow control*. Connect the COM port used by the datacomm program to the MR9600's RS-232 port on the rear of the CC9600 chassis.

3. Reset the MR9600 by pressing the reset button on the front with a paper clip, or turn the CC9600 chassis off and on.

4. When prompted to start manually, press a key.

5. When prompted to enter a user name and password, log in as **supervisor**.

6. Type the command **HDTEST** and press ENTER.

7. You will see a menu. Proceed with testing in the following order:

WARNING: Running options out of order or ones not specified may cause unpredictable results.

Test 2   Red LEDs on.

Test 3   Green LEDs on.

Test 4   All LEDs off.

Test 5   Flash memory test.

Test 7   Ethernet loopback test.

Watch for the green Ethernet LED on the left side of the front panel; it should be on solid. Numbers stopped and packets received will match.

Test 1   Start backplane. LEDs on the front panel of the MR9600 should reflect the number of cards installed.

Test a   Sets segment 1 modems to 9600 bps.

Test b   Sets segment 1 modems OOS.

Test c   Clears segment 1 modems OOS.

Test d   Resets segment 1 modems.

Appendix

Appendix A - Updating the MR9600 Controller Firmware

As part of Multi-Tech Systems' continuing effort to add value to its products, from time to time it releases new firmware for the MR9600 controller. This procedure describes how to obtain new firmware releases and use them to update your MR9600 controllers.

1. Download the current MR9600 controller firmware from the Multi-Tech Web site (www.multitech.com). Firmware files are available in the Service and Support area under "MultiModemManager & the CommPlete Communications Server" (http://ftp.multitech.com/mmminfo.htm).

   The firmware file name should be similar to "REL210.HXC."

2. Using a third-party FTP application, FTP the .HXC file to the B drive of the MR9600 controller. If you are unable to complete the transfer, it is possible that the controller's B drive is full. In that case, delete the most or all of the .HR files in B:\MMM\MR.LOG\ and try again.

3. Telnet to the MR9600 controller and change to the directory that you FTP'd the .HXC file to.

4. Type **update** *<filename>*, e.g., **update rel210.hxc**. The controller updates the firmware.

5. When the controller asks if you want to reboot, answer yes. Rebooting the controller does *not* disconnect users who are currently connected to your modems.

6. Telnet into the controller after waiting a couple of minutes for it to reboot. Log in as **supervisor**.

7. Delete the .HXC file.

8. Log out of the controller. The update is complete.

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